



SYSTEM OF MANAGEMENT OF THE MEDICAL HISTORY OF THE PROVINCIAL GOVERNMENT OF IMBABURA THROUGH THE INTEGRATION OF TECHNOLOGY "BUSINESS PROCESS MANAGEMENT (BPM)" AND "RICH INTERNET APPLICATIONS (RIA)

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Abstract. *This document details the process that was followed to give the clinic doctor of the Provincial Government of Imbabura, computer tool since the patient information was handled manually which was not promoting information from reliable, fast and secure way, allowing monitoring of the medical records of each patient, describe the tools used for the application and methodology of agile development of the system.*

Keywords

Consultation external, medical care, Pre_occupational, Post_occupational, Web application n-tier architecture.

1. Introduction

The Provincial Government of Imbabura is the institution responsible for coordinating, planning, implementing and evaluating the Provincial Development Plan participatory; strengthening productivity, the roads, the appropriate management of their natural resources and promoting citizen participation; to improve the quality of life of its inhabitants. **Source: GADP-I.**

In the GADP-I¹ there is a system of management of the Medical History. However there are currently some systems that automate part of the processes of management, and the taking of information is done in roles that are stored in folders, which in turn are vulnerable to loss, damage and delay in the search of the tab for

each patient so it generates a inefficient process for the control of medical histories.

The process of registration and control of medical records is not performed under any national and international standard by which generates disorder when you save and find a tab of the patient, the search is done manually which generates delay and dissatisfaction of the patient.

❖ General Objective

Design and implement the system of management of the Medical History of GPI, through the integration of technology "Business Process Management (BPM)" and "Rich Internet Applications (RIA)".

❖ Specific Objectives.

1. Determine the current situation and the processes of management of the medical history within the GADP-I.
2. Use methodology Scrum for agile development of the system and outermost regions for documentation.
3. Design the forms that will allow for the implementation and operation of the procedures laid down by binding data to the database.
4. Perform the respective tests necessary to determine the correct operation of the system before it can be implemented.

¹ GADP-I: Government decentralized autonomous Ibarra.

2. Materials and Methods

This section describes some concepts on the tools and methodologies used for the development of the system.

2.1. Development Tools

These are applications or frameworks that help developers to create a web application.

PostgreSQL - is a system object-relational, since it includes features of Guidance to objects, such as inheritance, data types, functions, restrictions, triggers, rules and transactional integrity.

RIA application: An application RIA is of great help for the development of applications of 2.0 already that provides multimedia components, which are of great help for the user.²

BPM technology: The administration of business processes is of vital importance for companies that handle process flows to reach an objective in the work.

Through the implementation of BPM³ you can design, represent, analyze and monitor business processes executable.

There are free software tools that are used to model processes as Bizagi Modeler and to manage processes as ProcessMaker.

RIA INTEGRATION AND BPM: The integration is done using webservices, which are services wsdl and soap with the aim of bringing in a single process.

TOAD DATA MODELER: Allows you to create models of object-relational data of high quality. Lets you easily implement exact changes to data structures in different platforms.

PHP: Allows you to apply object-oriented programming techniques that are also necessary in applications of Zend framework.

APACHE HTTP SERVER: Zend Framework account with your own application server that

serves to make the application functions and display through a web browser.

ADOBE FLASH BUILDER: This tool allows the integrated development, based in Eclipse

ADOBE FLEX: Is a open source framework that contains components of rich internet applications

2.2. Development methodology GADP-I.

Is the discipline that indicate that there are methods and techniques to use in each phase of the life cycle of development of the project.

Artifacts: Stories of User, Product batteries, batteries of iteration.

3. Results

The computer system of management of the Medical History develops with Technology RIA, the pattern that is used for the development of the system is N-layers based on MVC, formed in the following way:

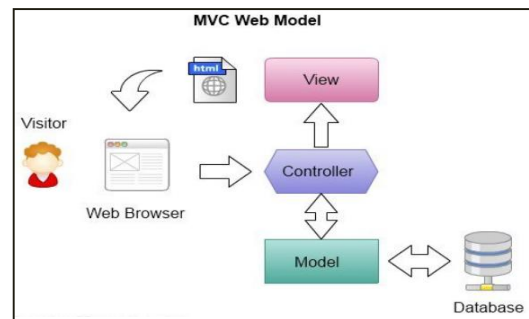


Figure 1: System Architecture
Source: GAD-I

To start with the development of the system has proceeded to build the application and build the structure MVC.

² RIA - Rich Internet Applications.

³ BPM:Administration of Business Processes

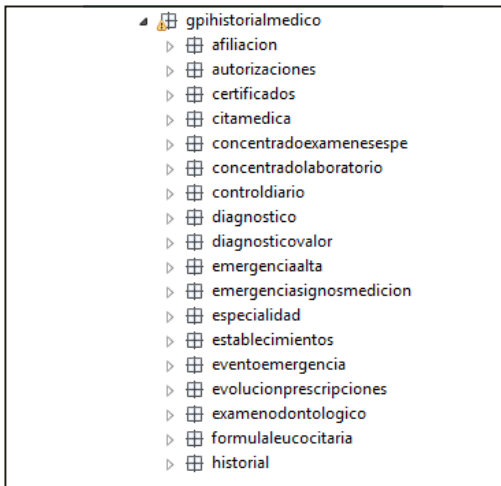


Figure 2: Medical Center Application Architecture
Source: Own.

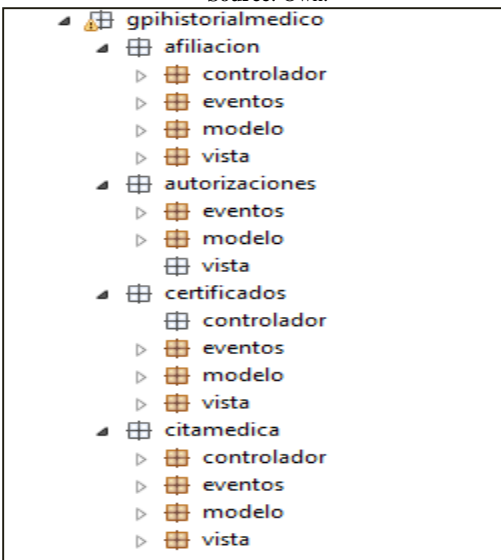


Figure 3: Architecture robotlegs application Medical Center
Source: Own.

Access Control.

The control of access to the user interface of the application is implemented in the GPI module_System, in conjunction with the user defined in the process with ProcessMaker.

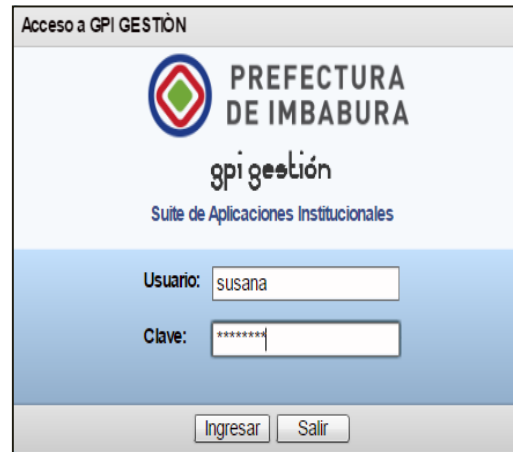


Figure 4: Start Window Section
Source: Own.



Figure 7: Desktop with embedded applications.
Source: Own.

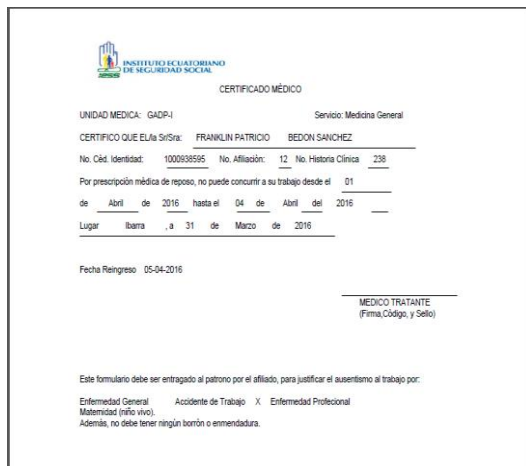
Creation History.

The data are shown in the following window.



Figure 8: GUI citizen Data Source: Own.

In addition is the issuance of documents such as a certificate of Rest Doctor.



INSTITUTO ECUATORIANO DE SEGURIDAD SOCIAL
CERTIFICADO MÉDICO

UNIDAD MÉDICA: GADP-I Servicio: Medicina General

CERTIFICADO QUE EL/la Sr/Sra: FRANKLIN PATRICIO BEDON SANCHEZ

No. Céd. Identidad: 1000038595 No. Afiliación: 12 No. Historia Clínica: 238

Por prescripción médica de reposo, no puede concurrir a su trabajo desde el 01 de Abril de 2016 hasta el 04 de Abril del 2016

Lugar: Ibarra, a 31 de Marzo de 2016

Fecha Reingreso: 05-04-2016

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Este formulario debe ser entregado al patrono por el afiliado, para justificar el ausentismo al trabajo por:
Enfermedad General Accidente de Trabajo X Enfermedad Profesional
Maternidad (infó vivo).
Además, no debe tener ningún borrón o enmendadura.

Figure 9: Report of certificate. Source: Own.

4. Conclusions

1. With the administration of users and access to the system, to successfully manage the different user accounts according to established profiles for the development of the application, provides the security and integrity of the information.
2. Using SCRUM, was able to provide a discipline on the allocation of tasks and responsibilities to make the system of management of medical histories and establishing some of the documents (Vision); required for the analysis of the scope, requirements and basic specifications of the system.
3. Through BPM will be established in an appropriate manner, taking as a basis the information provided by the medical center and adapting it to a model of enterprise business that can be implemented in a system (diagram of the Business Model Executable).
4. With the use of free software was highly compatible solutions that meet the system requirements; such as BPM Bonita, Postgres, PHP, who served in the development of the application and subject to the methodology raised in all phases of the project: Analysis, Design and development of the same.

5. With the automation of processes that were previously performed manually are obtained a saving of time and costs at the time of performing searches of medical histories.

Thanks

To God for giving me life, health, the wisdom to know correct my mistakes and continue on the path of good.

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